



Tawes Parking Lot Bioretention Facility

Urban development has greatly *decreased* the amount of natural wetland and stream buffers available for the filtration of stormwater runoff. These natural buffers act to remove pollutants by slowing stormwater so that plants and microbes have time to break down contaminants. Impervious surfaces such as parking lots and rooftops *increase* the velocity of stormwater runoff, and consequently *decrease* the time microbes, soils, and plants have to biochemically and physically remove potential pollutants.

Bioretention is a practice that uses natural forest ecosystems and landscape processes to treat stormwater runoff. These low-impact methods also have the potential to decrease implementation and maintenance costs on non-structural development activities, while effectively reducing pollutant loadings to aquatic systems.

The Tawes Parking Lot Bioretention Facility was constructed in 1998 to evaluate the effectiveness of stormwater wetland management, and to improve the water quality of nearby College Creek. The facility uses a series of rain gardens to treat runoff from approximately one acre of impervious surface. Water quality instruments monitor the first half inch of stormwater as it enters and leaves the facility in order to measure the treatment of parking lot runoff by a natural system.

This monitoring will enable researchers to calculate pollutant load removal and project bioretention effectiveness in other locations to meet the 40% pollutant load reduction goal set by the State of Maryland.

By 2001, concentrations of elements such as zinc, copper, and nitrates were reduced over 75% in the first half inch of rain that entered the facility during a storm event.

Location: Anne Arundel County, Annapolis, MD
Tawes State Office Complex Parking Lot

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Completed instrument housing and rain garden as seen from Tawes building in Annapolis, MD.

Cost:

\$20,160 over 3 years

Reduction in pollutant concentration 1998-2001:

(in the first 0.5 inch of runoff)

Zinc	down 93.5%
Copper	down 68.9%
Nitrate/Nitrogen	down 61.2%

Restoration at the Site Level



Existing sewer drain exposed prior to backfilling and stormwater retrofit.



Installing geotextile lining & stone filter.



Finishing backfill and installing landscaping.